

Our Reference: RST-007

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ralph S. Shoberg  
Serial Number: unknown  
Filing Date: April 3, 2001  
Examiner/Art Group Unit: unknown  
Title: METHOD AND APPARATUS FOR  
AUDITING A TENSION LOAD IN THE  
THREADED FASTENER

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents  
Washington, D.C. 20231

Att: Box Non-Fee

Sir:

Prior to initial examination, please amend the above-identified patent application as indicated below:

Please add the following new claims:

- 1 14. A method for auditing a tension load of a fastened threaded
- 2 fastener comprising:
- 3 providing a tightened fastener;
- 4 applying a torque to the threaded fastener;
- 5 monitoring the torque;
- 6 measuring a rate of change of the torque per unit of angle of
- 7 rotation of the threaded fastener;
- 8 determining a breakaway point;
- 9 determining the rate of change of the torque per unit of angle
- 10 rotation after the breakaway point; and
- 11 comparing a measured rotation angle against a predetermined

12 angle.

1 15. The method of claim 14 wherein the application of a torque  
2 is applied in a tightening direction.

1 16. The method of claim 15 wherein the torque is applied until  
2 a rotation from about 1 degree to about 15 degrees is achieved.

1 17. The method of claim 16 wherein the torque is applied until a  
2 rotation from about 10 degrees to about 14 degrees is achieved.

1 18. The method of claim 14 wherein the application of a torque  
2 is applied in a loosening direction.

1 19. The method of claim 18 wherein the torque is applied until a  
2 rotation from about 1 degree to about 10 degrees is achieved.

1 20. The method of claim 14 further comprising the step of  
2 computing an angle intercept of the angle axis from the determined constant  
3 rate of change.

1 21. The method of claim 20 further comprising the step of scaling  
2 the angle axis whereby the zero degree point is the angle intercept of angle  
3 axis.

1 22. The method of claim 14 wherein the predetermined angle  
2 is a design parameter.

#### REMARKS

Upon entry of this Amendment, claims 1-8, and 14-22 are

pending.

Entry of this Preliminary Amendment is respectfully requested. If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's amendment, the Examiner is cordially invited to contact the Applicant's attorney at the telephone number listed below.

Respectfully submitted,

YOUNG & BASILE, P.C.



Thomas E. Bejin  
Attorney for Applicant(s)  
Registration No. 37,089  
(248) 649-3333

3001 West Big Beaver Rd., Suite 624  
Troy, Michigan 48064-3107

Dated: April 3, 2001  
TEB/AEG/p